IN THE CLAIMS

Please cancel claims 15, 16-36, 37-39, 41, 42, 44-48 and 50-51 without prejudice to future prosecution of these claims in a related case.

Kindly cancel claim 6 and claim 14.

Kindly amend the following claims:

1.(Amended) An isolated nucleic acid encoding a mammalian SCA2 polypeptide and comprising:

the nucleic acid sequence GGGCCCCTCACCATGTCG;

the nucleic acid sequence CCAATGTCCGCAAGCCCG;and

a CAG repeat sequence.

4.(Amended) A DNA fragment having a nucleic acid sequence obtained from the isolated nucleic acid sequence of [according to] claim 2, wherein said DNA fragment encodes at least about 10 contiguous amino acids set forth in SEQ ID NO:3 or SEQ ID NO:5.

5.(Amended) A DNA fragment having a nucleic acid sequence obtained from the isolated nucleic acid sequence of [according to] claim 2, wherein said DNA hybridizes under high stringency conditions, comprising a final stringency of 0.2 SSC, 0.1x SDS at 65 °C, to the SCA2 coding portion of nucleotides 1-516 of SEQ ID NO:1 or nucleotides 163-4098 of SEQ ID NO:2 or SEQ ID NO:4.

8. (Amended) An isolated host cell containing a vector according to claim 7, wherein said cell is a procaryotic cell or a eucaryotic cell.

12. (Amended) A kit for detecting [mutations and] alterations in the length of a CAG repeat sequence in chromosome 12 at the SCA2 locus in 12q24.1 comprising at least [one] two oligonucleotides according to claim 10 wherein the oligonucleotides amplify a CAG repeat sequence.

40. (Amended) At least two single strand DNA primers for the amplification of at least a portion of [diagnosis of] an SCA2 CAG repeat sequence, wherein said primers comprise a nucleic acid sequence derived from the nucleic acid [according to claim 1 set forth] of SEQ ID NO:2 or SEQ ID NO:4.

43. (Amended) A diagnostic kit to detect a CAG repeat sequence in an SCA2 gene, the kit comprising at least one oligonucleotide according to claim 10 contained in a packaging material.

49. (Amended) A DNA fragment produced by [the method of Claim 46] the step of:

performing a polymerase chain reaction with oligonucleotide primers capable of amplifying the CAG repeat region located within the spinocerebellar ataxia type 2 gene to produce at least one DNA fragment comprising the oligonucleotide primers and at least a portion of the gene [wherein the DNA fragment contains a CAG repeat region and wherein the DNA fragment specifically hybridizes to a spinocerebellar ataxia type 2 gene].

52. (Amended) An isolated DNA fragment wherein the nucleic acid sequence of the fragment comprises [having a sequence comprising bases 631-648] the nucleic acid of SCA2-A [of SEQ ID NO:2 from a spinocerebellar ataxia type 2 gene] and a CAG repeat sequence [region].

REMARKS

Applicants' Representatives have received and carefully reviewed the Office Action mailed December 3, 1997. The sequence listing has been amended and the amendments to the specification reflect the amended sequence listing. An amended executed declaration is also included with this response. A number of amendments have been made to the claims. Claim 1 has been amended. Support for the nucleic acid sequences recited in claim 1 are supported by FIGURE 6A (primer locations SCA2-A and SCA2-B and SCA2-A and SCA2-B are well described throughout the application) and support for the phrase "CAG repeat sequence" is provided throughout the specification and in one example at page 35 line 13. Support for the wash conditions of claim 5 is found at page 45, beginning at line 32. Claim 6 and claim 14 have been cancelled. Support for the amendments to claim 12 is provided throughout the specification and in one example, at page 33, line 35 of the specification and at FIGURE 6A. Amendments to claims 40 and 43 are provided throughout the specification and support for the amendment to claim 49 is found throughout the specification and in the examples. No new matter has been added by these amendments.

35 U.S.C. § 112, first paragraph

The Examiner has rejected to the currently pending claims under 35 U.S.C. § 112, first paragraph stating that since the "skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides or proteins" there has been no conception of the invention. Claim 1 is now amended to more clearly recite the present invention. With respect to the presence of a variable length CAG repeat sequence as potentially precluding a sufficient description of the chemical structure of a polynucleotide and the availability of patent protection for classes of nucleic acid sequences encoding proteins and having variable length trinucleotide